

IN THE CLAIMS

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1. (Currently amended) A body implantable system, comprising:
- at least one lead comprising an atrial electrode for sensing and pacing an atrium of a heart;
  - energy delivery circuitry coupled to the at least one lead;
  - a detector, coupled to the at least one lead, that detects high atrial interval rates indicative of atrial arrhythmia;
  - memory configured to define an atrial window having a length and a first satisfaction criterion; and
  - a control circuit coupled to the energy delivery circuitry, detector and memory, the control circuit delaying delivery of atrial arrhythmia therapy until an atrial episode is declared, and inhibiting the energy delivery circuitry from delivering pacing signals to the atrium in response to detecting the high atrial interval rates and wherein the detector detects atrial intervals while delivery of the pacing signals to the atrium is inhibited, the control circuit classifying the atrial intervals in the atrial window and declaring an atrial episode in response to satisfying the atrial window by evaluating the atrial intervals in the atrial window with respect to the first satisfaction criterion.
2. (Original) The system of claim 1, wherein the control circuit inhibits delivery of the pacing signals in response to detecting high atrial interval rates indicative of atrial flutter.
3. (Original) The system of claim 1, wherein the control circuit inhibits delivery of the pacing signals in response to detecting high atrial interval rates of at least about 130 bpm.
4. (Previously amended) The system of claim 1, wherein the control circuit inhibits delivery of the pacing signals during a duration of a detection window initiated by the control circuit in response to detecting high atrial interval rates indicative of atrial arrhythmia.

5. (Previously amended) The system of claim 1, wherein the control circuit initiates a post-ventricular atrial refractory period (PVARP) and the detector detects an atrial event occurring within the PVARP, and the control circuit initiates a detection window in response to the detected atrial event and inhibits delivery of an atrial pace signal during a duration of the detection window.

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6. (Original) The system of claim 5, further wherein the detector detects a subsequent atrial event occurring before expiration of the detection window, the control circuit initiating a subsequent detection window in response to the sensed subsequent atrial event and inhibiting delivery of a subsequent atrial pace signal during a duration of the subsequent detection window.

7. (Original) The system of claim 1, wherein the control circuit inhibits delivery of the pacing signals to cause an increase in a rate of atrial window satisfaction.

8. (Original) The system of claim 1, wherein the control circuit enables delivery of the pacing signals to the atrium after ceasing of the high atrial interval rates indicative of atrial arrhythmia.

9. (Previously amended) The system of claim 1, wherein the atrial window length is defined by a number of atrial interval samples ranging between about 20 and 60 atrial interval samples.

10. (Previously amended) The system of claim 1, wherein the first satisfaction criterion represents a predetermined number, percentage or ratio of atrial intervals classified by the control circuit as fast atrial intervals relative to the atrial window length.

11. (Previously amended) The system of claim 1, wherein the first satisfaction criterion represents about 80 percent of atrial intervals classified by the control circuit as fast atrial intervals.

12. (Previously amended) The system of claim 1, wherein the atrial window has a second satisfaction criterion, and the controller further verifies that the declared atrial episode is a sustained atrial episode in response to the atrial window being satisfied by the second satisfaction criterion for subsequent atrial intervals.

B | 13. (Previously amended) The system of claim 12, wherein each of the first and second satisfaction criterion represents a predetermined number, percentage or ratio of atrial intervals classified by the control circuit as fast atrial intervals relative to the atrial window length, and the second satisfaction criterion is less than the first satisfaction criterion.

14. (Original) The system of claim 13, wherein the first satisfaction criterion represents about 80 percent of the atrial intervals classified as fast atrial intervals and the second satisfaction criterion represents about 60 percent of the subsequent atrial intervals classified as fast atrial intervals.

15. (Currently amended) A method implemented with an implantable medical device capable of sensing and pacing at least an atrium of a heart, comprising:

detecting high atrial interval rates indicative of atrial arrhythmia;

delaying delivery of atrial arrhythmia therapy until an atrial episode is

declared;

inhibiting delivery of pacing signals to the atrium ~~in response to detecting the high atrial interval rates;~~

detecting atrial intervals while inhibiting delivery of the pacing signals to the atrium;

classifying the atrial intervals in an atrial window, the atrial window having a length and a first satisfaction criterion; and

declaring ~~an~~ the atrial episode in response to satisfying the atrial window ~~by evaluating based on classification of~~ the atrial intervals in the atrial window with respect to the first satisfaction criterion.

B | 16. (Original) The method of claim 15, wherein inhibiting delivery of the pacing signals comprises inhibiting delivery of the pacing signals in response to detecting high atrial interval rates indicative of atrial flutter.

17. (Original) The method of claim 15, wherein inhibiting delivery of the pacing signals comprises inhibiting delivery of the pacing signals in response to detecting high atrial interval rates of at least about 130 bpm.

18. (Previously amended) The method of claim 15, wherein a detection window is initiated in response to detecting high atrial interval rates indicative of atrial arrhythmia, and inhibiting delivery of the pacing signals comprises inhibiting delivery of atrial paces during a duration of the detection window.

19. (Original) The method of claim 15, further comprising:  
detecting an atrial event occurring within a post-ventricular atrial refractory period (PVARP);  
initiating a detection window in response to the detected atrial event; and  
inhibiting delivery of an atrial pace signal during a duration of the detection window.

20. (Original) The method of claim 19, further comprising:  
detecting a subsequent atrial event occurring before expiration of the  
detection window;  
initiating a subsequent detection window in response to the detected  
subsequent atrial event; and  
inhibiting delivery of a subsequent atrial pace signal during a duration of  
the subsequent detection window.
21. (Original) The method of claim 15, wherein inhibiting delivery of the  
pacing signals comprises inhibiting delivery of the pacing signals to cause an increase in a  
rate of atrial window satisfaction.
22. (Original) The method of claim 15, further comprising enabling delivery  
of the pacing signals to the atrium after ceasing of the high atrial interval rates indicative  
of atrial arrhythmia.
23. (Previously amended) The method of claim 15, wherein the atrial window  
length is defined by a number of atrial interval samples ranging between about between  
20 and 60 atrial interval samples.
24. (Original) The method of claim 15, wherein the first satisfaction criterion  
represents a predetermined number, percentage or ratio of the atrial intervals classified as  
fast atrial intervals relative to the atrial window length.
25. (Original) The method of claim 15, wherein the first satisfaction criterion  
represents about 80 percent of the atrial intervals classified as fast atrial intervals.
26. (Original) The method of claim 15, further comprising verifying that the  
declared atrial episode is a sustained atrial episode in response to the atrial window being  
satisfied by a second satisfaction criterion for subsequent atrial intervals.

27. (Original) The method of claim 26, wherein each of the first and second satisfaction criterion represents a predetermined number, percentage or ratio of the atrial intervals classified as fast atrial intervals relative to the atrial window length, and the second satisfaction criterion is less than the first satisfaction criterion.

B1 28. (Original) The method of claim 27, wherein the first satisfaction criterion represents about 80 percent of the atrial intervals classified as fast atrial intervals and the second satisfaction criterion represents about 60 percent of the subsequent atrial intervals classified as fast atrial intervals.

Claims 29-36 (Previously cancelled).

37. (New) An atrial tachyarrhythmia detection system, comprising:  
means for detecting high atrial interval rates indicative of atrial  
arrhythmia; and  
means for declaring an atrial episode in response to detecting the high  
atrial interval rates, the means for declaring the atrial episode comprising:  
means for delaying delivery of therapy for the atrial arrhythmia  
until the atrial episode is declared;  
means for inhibiting delivery of pacing signals to the atrium;  
means for detecting atrial intervals while inhibiting delivery of the  
pacing signals to the atrium;  
means for classifying the atrial intervals in an atrial window, the  
atrial window having a length and a first satisfaction criterion; and  
means for declaring the atrial episode in response to satisfying the  
atrial window based on classification of the atrial intervals in the atrial window  
with respect to the first satisfaction criterion.

38. (New) The system of claim 37, further comprising:

means for detecting an atrial event occurring within a post-ventricular atrial refractory period (PVARP);

means for initiating a detection window in response to the detected atrial event; and

means for inhibiting delivery of an atrial pace signal during a duration of the detection window.

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39. (New) The system of claim 38, further comprising:

means for detecting a subsequent atrial event occurring before expiration of the detection window;

means for initiating a subsequent detection window in response to the detected subsequent atrial event; and

means for inhibiting delivery of a subsequent atrial pace signal during a duration of the subsequent detection window.

40. (New) The system of claim 37, further comprising means for enabling delivery of the pacing signals to the atrium after ceasing of the high atrial interval rates indicative of atrial arrhythmia.

41. (New) The system of claim 37, further comprising means for verifying that the declared atrial episode is a sustained atrial episode in response to the atrial window being satisfied by a second satisfaction criterion for subsequent atrial intervals.

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